CURRENT RESEARCH AND DEVELOPMENT IN BIOTECHNOLOGY ENGINEERING AT IIUM

VOLUME II

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IIUM PRESS

INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA

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IIUM Press

Published by:
IIUM Press
International Islamic University Malaysia

First Edition, 2011
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Perpustakaan Negara Malaysia Cataloguing-in-Publication Data

Ibrahim Ali Noorbatcha, Hamzah Mohd. Salleh, Mohamed Elwathig Saeed Mirghani & Raha Ahmad Raus: Current Research and Development in Biotechnology engineering at IIUM Volume II

ISBN: 978-967-418-151-2

Member of Majlis Penerbitan Ilmiah Malaysia – MAPIM
(Malaysian Scholarly Publishing Council)

Printed by :
IIUM PRINTING SDN. BHD.
No. 1, Jalan Industri Batu Caves 1/3
Taman Perindustrian Batu Caves
Batu Caves Centre Point
68100 Batu Caves
Selangor Darul Ehsan

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CHAPTER 7

EXTRACTION AND EVALUATION OF ANTIBACTERIAL ACTIVITY FROM SELECTED FLOWERING PLANTS

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ABSTRACT

Antibacterial activities have been detected in some of the Malaysian plants and most of the Malaysian medicinal plants have been screened for this property. However, so far no study has focus on Malaysian flowering plants yet. In this study, the extraction and determination of antibacterial property from 19 Malaysian flowering plants were conducted. The plants were extracted with methanol, ethyl acetate, hexane and distilled water, individually at concentration of 0.1g/ml. The extraction process condition was set to 300 rpm agitation for 10 hours at room temperature. The crude extracts of each plant (5 mg/disc) were tested against *Bacillus subtilis* and *Escherichia coli* using agar disc diffusion assay method. The screening results showed that ethyl acetate extract of *Spathiphyllum cannifolium* ('peace lily') leaves possesses the highest antibacterial activity against *B. subtilis* with zone of inhibition of 25 mm. Most of the plant samples extracted with methanol and ethyl acetate have indicated positive activity toward *B. subtilis* growth. However, the hexane and distilled water extracts was ineffective to combat the *B. subtilis* growth. Unfortunately, all of the extracts were not active against *E. coli*. This study suggested that *S. cannifolium* is highly potential in antibacterial activity which can be further analyzed for the development of new antibiotic exclusively for gram positive bacteria.

Keywords: Antibacterial activity, *Spathiphyllum cannifolium,* Disc diffusion assay

INTRODUCTION

The natural sources have long been used in traditional medicine to treat infectious diseases. Numerous screening practices from different plant parts had been carried out to extract the bioactive compounds from plants to evaluate the effectiveness of herbal medicine used before. Previous study had found that the herbal medicine is still the mainstay of about 75-80% of the whole population, for the primary healthcare because of better cultural acceptability, better compatibility with the human body and fewer side effects (Parekh et al., 2005). There is a continuous and urgent need to discover new antimicrobial compounds with diverse chemical